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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/024,655	12/14/2001	Naoki Nishita	IGARA29.001AUS	2658

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EXAMINER

LIN, TINA M

ART UNIT PAPER NUMBER

2874

DATE MAILED: 07/31/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/024,655

Applicant(s)

NISHITA, NAOKI

Examiner

Tina M Lin

Art Unit

2874

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 26 June 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

This Office action is responsive to applicant's communication submitted on 26 June 2003. The Examiner notes the corrections of the minor informalities.

#### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 4, and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication US2002/0102073 A1 to Shirakawa and further in view of U.S. Patent Application Publication US2002/0197023 A1 to Serizawa. Shirakawa discloses an optical connector with a receptacle connector, a plug connector fitted inside the receptacle connector and a light emitting diode. Additionally, Shirakawa discloses a light emitting diode and a light-receiving element to be arranged side by side that the first optical fiber is connected to the light emitting diode and the second optical fiber is connected to the light-receiving element. But Shirakawa fails to specifically disclose the optical fiber to be arranged so that the end face of the fiber is positioned deeper than the connecting face but, from the figure in the patent application, figure 14 specifically and figures 1 and 16, it can be observed that the end face of the fiber is positioned deeper than the connecting face from the position of where the locking arm locks into place with the receptacle. Shirakawa also fails to disclose a convergent lens to converge the light emitted by the light emitting diode for the purpose of creating a smaller numerical aperture for the light emitting diode than the optical fiber. However, Serizawa does disclose an optical

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connector with a lens in a sleeve for the purpose of gathering light and therefore altering the numerical aperture in the sleeve. ([0095], [0172]) Serizawa however, also discloses the alteration of the numerical aperture to cause the numerical aperture of the sleeve to be larger than or to match the numerical aperture of the fiber. Since Shirakawa and Serizawa both disclose optical connectors of a similar arrangement having a receptacle and plug type connection with light emitting and transmitting elements, the purpose disclosed by Serizawa, a lens to converge light would have been recognized in the pertinent art of Shirakawa. Therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to have used a lens that altered the numerical aperture of the light-emitting element in order to obtain the necessary values for the purpose of the optical connector.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication US2002/0102073 A1 to Shirakawa in view of U.S. Patent Application Publication US2002/0197023 A1 to Serizawa as applied to claim 1 above, and further in view of U.S. Patent 5,923,805 to Anderson et al. Shirakawa and Serizawa disclose all discussed above, but fail to mention a plastic optical fiber having a diameter not less than 0.5 mm. However, Anderson et al. does disclose an optical connector that uses a plastic optical fiber in the connector with a diameter that exceeds 300  $\mu\text{m}$ , which is equivalent to 0.3mm. Therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to have used a plastic optical fiber with a diameter not less than 0.5mm.

Applicant's arguments filed 26 June 2003 have been fully considered but they are not persuasive. Applicant argues that the Examiner fails to establish *prima facie* case of obviousness between the references Shirakawa and Serizawa. However, the combination of the two

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references are clear to one skilled in the art. Shirakawa and Serizawa both disclose an optical connector with a receptacle and plug connection. Furthermore, Shirakawa and Serizawa's connectors both include a light emitting and receiving element within the housing for improved efficiency and productivity. Since both Shirakawa and Serizawa disclose receptacle plug type connectors with similar structures, it would have been obvious to combine the two references.

Applicant additionally argues neither Shirakawa or Serizawa disclose a convergent lens for converging light emitted from the light emitting element. However, Serizawa discloses a lens provided on a sleeve for the purpose of gathering light and therefore altering the numerical aperture in the sleeve. ([0095], [0172]) Although Serizawa does not specifically disclose the convergent lens to create a smaller numerical aperture, Serizawa does disclose numerical aperture of the sleeve to be able to be altered and also the numerical aperture of the sleeve to match the numerical aperture of the fiber. By converging the light, the numerical aperture of the light is decreased. If the numerical aperture decreases to be less than the numerical aperture of the fiber, it would allow for the light to be incident to the fiber and therefore obtain an improved efficiency. It would have been obvious to one skilled in the art to have altered the numerical aperture for an improved efficiency.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period


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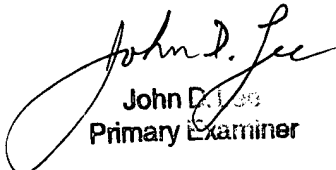
will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tina M Lin whose telephone number is (703) 305-1959. The examiner can normally be reached on Monday-Friday 8:30-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (703) 308-4819. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

TML   
July 29, 2003

  
John D. Lee  
Primary Examiner